Bogd counties exceeded their Pasture carrying capacity (PCC) by 178–247%.

The majority of the herders who took part in the study blamed decreased precipitation and climate change for pasture deterioration (65%). The remainder put the blame on increased livestock pressure (34%). It is clear that this state of mind has given rise to inaction and hopelessness on the part of the herders. This is a dangerous state of affairs because it leads herders to believe that they do not need to take an active role in alleviating pasture problems.

Goats had the lowest overall value (4,530 MNT), compared to sheep (6,720 MNT) and horses (23,820 MNT). This can be explained by the fact that, when the cost of their environmental impact was factored in, their value decreased significantly. For the other animals, the potential value of their meat and other products outweighed the cost of their environmental impact.

A hybrid policy is the best option

The study found that a hybrid policy comprising Options 1 (introducing a communal pasture management system, involving the creation of herder groups) and Option 2 (Imposing pasture utilization fees on herders) would be best for Mongolia.

Option 1 offers the speediest policy solution because it will be the easiest one for the different stakeholders to accept. Although the government receives very little money from herders in Option 1, the herders themselves get the highest net gains because they face few burdens in terms of fees or charges.

Option 2's pasture fee system would strengthen herding groups and impose a smaller burden on the government. In Option 2, the government collects an ample sum of money in the form of pasture fees, but it has to spend half of this on pasture restoration. The study recommends that Option 2 should be incorporated into Option 1 approximately five years after the herding groups have been formed.

Making herding sustainable

This hybrid policy will combine the efforts of herders and the government. It will result in: (a) the gradual reduction of livestock numbers to comply with pasture carrying capacities, (b) an increase in livestock productivity and household income with the introduction of new SMEs, (c) the establishment of inbreeding centers for highly productive local livestock species, and (d) degraded pasture restoration. This mixed policy will ensure sustainable pastures as well as secure the long-term livelihoods of herder households.

These policies should make a marked difference in the quality of the pastures and help ensure that they are able to sustain livestock in the long run. For this to happen, the study recommends that more emphasis must be placed on improving the productivity of livestock through the establishment of SMEs and the improvement of livestock breeds. If this is done, herders will begin to look away from trying to maximize their herd sizes and instead try to optimize the quality and productivity of their individual herds.

The study recommends that this hybrid policy should be pursued with a sense of urgency that reflects the critical importance of the pasture degradation problem in Mongolia. It also recommends a number of other polices that central government should implement. These are: setting limits on goat populations; providing incentives for herders to reduce their livestock sizes; creating alternative livelihood options for rural populations; enhancing the livestock productivity per head; adopting a new pasture law; improving coordination between the different ministries dealing with pastureland issues; and investing more in public awareness campaigns and training programs.

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The Economy and Environment Program for Southeast Asia (EEPSEA) was established in May 1993 to support training and research in environmental and resource economics across its 9 member countries: Cambodia, China, Indonesia, Laos, Malaysia, Papua New Guinea, the Philippines, Thailand, and Viet Nam. Its goal is to strengthen local capacity for the economic analysis of environmental problems so that researchers can provide sound advice to policymakers.

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How to Make Herding Sustainable – A Policy Assessment from Mongolia

EEPSEA POLICY BRIEF • No. 2011-PB12

In the last two decades Mongolia's vast areas of pastureland have been rapidly degraded and desertified. Although the main cause of this national crisis is believed to be climate change, overgrazing and livestock over-population are also major contributing factors. Now a new EEPSEA study has assessed the degradation and the economic value of the livestock (particularly goats) that are causing much of the →

A summary of EEPSEA Research Report No. 2011-RR12: 'An Economic Analysis of the Environmental Impacts of Livestock Grazing in Mongolia by Erdenesaikhan Naidansuren and Onon Bayasgalan
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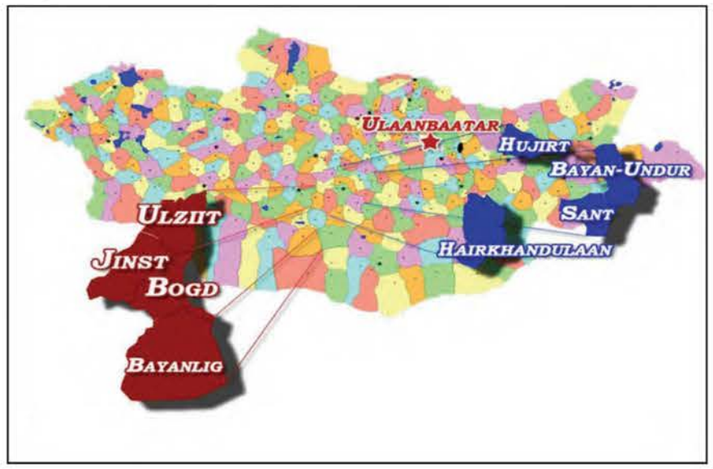
"A hybrid policy should be ... ursued with a sense of urgency"

Study sites



Source: Batmunkh (2008)

damage. To find a solution to the crisis, it has also evaluated a number of key policy options.

The study is the work of Erdenesaikhan Naidansuren and Onon Bayasgalan from the Environment and Security Center of Mongolia. The researchers show that goats have lower economic value due to their high environmental costs. They recommend that a communal pasture management system should be set up and that fees should be imposed on the use of pastures. This mix of policies should ensure that the use of pasture land becomes sustainable. It should also secure the long-term livelihoods of herder households.

Pastureland degradation and desertification

Eighty per cent of the land in Mongolia is a common access resource; about 90% of this is used as pastureland by the country's 200,000 herder households. As of 2007, 72% of this pasture was undergoing desertification and pasture carrying capacity was being exceeded by a margin of 32%. The carrying capacity of a pasture is the maximum number of animals that can graze a pasture throughout the grazing season without harming it.

Degraded pastures have a direct impact on the lives and livelihoods of herders. For example, degraded pastures can lead to low livestock productivity, which translate to lower family income. The degradation of pastures also affects the well-being of the whole of Mongolian society by disrupting the supply of meat and dairy products. Due to pasture degradation, every winter, several thousand herders migrate to Ulaanbaatar to seek alternative income sources. Overall, if pasture degradation is not addressed in a timely manner, the country's grassland ecosystem will collapse, which will have terrible consequences for future generations.

The causes of the problem

The overgrazing of Mongolia's vast pastures is due to the absence of a successful, sustainable pasture management system. The main reason for this is the lack of effective coordination and regulation. The current pasture use system is in chaos; there are constant disputes over who is entitled to use which pastures and it has become the norm for herders to try to use as much pasture as they can.

Another key problem is that Mongolia has the highest per capita livestock figure in the world but does not benefit fully from this. This is due to a number of factors: Firstly, Mongolians primarily drink imported milk, even though there is an ample domestic supply. This is due to the remote locations of most local milk markets. Secondly, the country cannot achieve competitive advantage in the meat market because its slaughtering system does not meet international trade standards. Lastly, herders are not experienced or skilled enough in processing their products to add value to them; they only know how to sell the raw materials. All these point to a very inefficient animal husbandry production system.

The study area: eight counties from Uvurhangai and Bayanhongor provinces

Mongolia is administratively divided into 21 provinces and the capital city of Ulaanbaatar. It has a total population of 2.7 million. Each province has an average population of 75,000 inhabitants and between 14 to 27 counties (also referred to as soums). The researchers selected eight counties from Uvurhangai and Bayanhongor provinces as study sites. These were: Ulziit, Bayanundur, Sant, Hujirt, Hairhandulaan, Jinst, Bayanlig and Bogd. They are among the provinces with the highest goat population densities. The flora and fauna of all of these provinces has been seriously affected by the overgrazing of pastures and competition for water resources.

Primary and secondary sources of information were used to identify the main causes of pasture degradation in the study areas. First, a survey was conducted among local herding communities. This asked them about their opinions concerning local environmental problems. Twenty herder families from each county participated in the survey; in all a total of 160 herders were surveyed. Most of the respondents were family heads, of which 77% were men and 23% were women.

Government and NGO agricultural and environmental reports were reviewed, and satellite images of desertification were assessed to gather additional information on desertification and land degradation rates.

Investigating policy options

Using this information, the level of land degradation in the eight counties was assessed. The researchers also looked at the economic significance of the herders' livestock and the impact it is having on pasture sustainability. This assessment looked at the value of the animals in the broadest sense and included the cost of their impact on the environment.

Three policies that might help deal with the land degradation problem were then developed and reviewed. These policy options were: Option 1 - Introducing a communal pasture management system, involving the creation of herder groups that have responsibility for designated pasture areas; Option 2 - Imposing pasture utilization fees (to be reinvested in pasture regeneration) on herders; Option 3 - Reinstituting income tax for herders.

The researchers estimated that to reach a livestock count that did not exceed the Pasture Carrying Capacity (PCC) in the five study counties, the total number of livestock would have to be reduced to approximately 290,000 heads or by 3.4 times. As most herders live below or close to the poverty line, livestock numbers will have to be reduced slowly so that households are not made destitute. The researchers therefore decided that their policies should aim for a gradual reduction in livestock numbers over a 20-year period. This timeline could be shortened if conditions prove more favorable than anticipated and pasture quality improves more rapidly than expected. It was also envisaged that this gradual reduction in livestock would happen simultaneously with investments in pasture restoration, the establishment of schemes to increase livestock productivity, and the promotion of Small to Medium Enterprises (SMEs) for the processing of livestock raw materials and dairy products.

The policies were assessed in terms of their cost, impact and practicality/administrative feasibility as well as acceptability by the government and herders. That said, all of the policies challenge the deeply imbedded beliefs and lifestyles of Mongolian herders. None of them represent an easy solution to the nation-wide pasture management dilemma. They would all require input and cooperation from legislators, government officers, herders and rural entrepreneurs.

Levels of degradation and the value of livestock

The study found that most of the counties in the study have severely degraded lands. Uvurhangai has a higher level of pasture degradation, which ranges from 45% to 80%. Sant County displays the worst case of degradation at 80%. Bayanundur, Sant, Hujirt, Hairhandulaan, and

Pasture status in the study counties

County	Total pasture ('000 ha)	Average grass productivity (kg per hectare)	Pasture degradation status (ha)				Degraded pasture (%)
			Normal or slightly degraded	Low	Medium	High	
Bayanundur	324.1	260	147.8	28.3	134.2	13.8	54.4
Sant	260.9	250	150.7	115.7	87.1	5.9	80.0
Hujirt	152.2	460	59.3	52.3	21	19.7	61.1
Hairhandulaan	410.8	150	225.1	74.5	55.3	55.9	45.2
Bayanlig	1118.7	110	856	116.2	39.1	107.4	23.5
Jinst	509	160	361.2	111.7	36.1	-	29.0
Bogd	365.8	160	304.6	0	44.8	28.3	20.0
Ulziit	374.1	400	217.8	133.9	22.4	-	41.8

Source: ALAGAS (2008)